THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF HEALTH AND HUMAN SERVICES
MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

Health Care Utilization and Charges for AIDS and HIV Disease

Massachusetts: 1988-1991

Bureau of Health Statistics, Research and Evaluation
AIDS Statistical and Evaluation Program
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TABLE OF CONTENTS

Health Care Utilization and Charges for AIDS and HIV Disease in Massachusetts, 1988-1991 provides the most current data available on the utilization of and charges for health care services in Massachusetts for those with AIDS and HIV disease.

It is the first in a series of surveillance reports on the utilization and charges of health care services provided in Massachusetts to people with AIDS and HIV. The purpose of the series is to provide basic information about AIDS/HIV health care service charges and utilization; this information can be used for program targeting, planning, evaluation, and advocacy. The series will develop a comprehensive portrait of health care service utilization by AIDS/HIV patients and the charges for their utilization, and will eventually include statistics from all sites of care and all payers. Supplemental reports focusing on specific analytic issues related to AIDS/HIV health service utilization and charges will also be published periodically.

Health Care Service Utilization

Between 1988 and 1991, the total number of AIDS/HIV related discharges from acute care hospitals in Massachusetts increased by 98%. However, during this same period, the average length of stay (ALOS) for each discharge actually decreased by 20% and the average number of discharges per year for each AIDS/HIV patient remained constant. In other words, AIDS/HIV patients have been staying in the hospital for fewer days during each hospital stay, but the number of hospital stays annually for each AIDS/HIV patient has not changed. Additionally, the total number of hospital stays has increased due to an increase in the number of AIDS/HIV patients.

Average Length of Stay

—ALOS for AIDS/HIV discharges was 9.4 days in 1991, as compared to an ALOS of 7.0 days for discharges for all other diagnoses;

—ALOS for Medicaid AIDS/HIV discharges was highest at 9.9 days in 1991, and ALOS for HMO discharges was lowest at 8.1 days;

—ALOS for AIDS/HIV discharges decreased by 20% from 11.8 days in 1988 to 9.4 days in 1991, with a 25% increase in the number of 1 day hospital stays and a 54% increase in the number of 2-3 days hospital stays.

Annual Average Number of Hospital Discharges per Patient

—the average number of discharges per AIDS/HIV patient per year was 1.68 in 1991, and has remained stable since 1988.

Total Number of Hospital Discharges

—5,614 discharges from acute care hospitals occurred for AIDS/HIV disease in 1991, constituting less than 1% of all discharges from acute care hospitals in Massachusetts;

—44% of all AIDS/HIV discharges were covered by Medicaid in 1991;

—between 1988 and 1991, the number of AIDS/HIV discharges increased by 98%, as compared to a 3.3% increase in the number of discharges for all other diagnoses. The 98% increase in the number of AIDS/HIV discharges between 1988 and 1991 reflects the 101% increase in the number of AIDS/HIV patients in Massachusetts.

Ambulatory Care

—clients enrolled in MDPH's ACT NOW Program, a program providing primary health care to uninsured and underinsured MA residents with HIV disease, averaged 7.2 ambulatory care visits in 1991;

—clients enrolled in MDPH's HIV Drug Reimbursement Program, a program providing medication to uninsured/underinsured MA residents with HIV disease, averaged 5.1 reimbursed prescriptions per year;

—home health agencies in Massachusetts in 1990 had 1,125 AIDS/HIV cases, a 115% increase since 1989.

Health Care Service Charges

This report reports data on charges for acute inpatient hospitals in Massachusetts rather than costs. As is explained on page 6, charges represent the amount a hospital bills for its services and not necessarily the true cost of those services.

Between 1988 and 1991, the average charge for each AIDS/HIV hospital discharge in Massachusetts increased by only 3.4% and the average inpatient charges per AIDS/HIV patient per year slightly decreased. During this same period, the average charge per day for AIDS/HIV patients increased by 30%.

Average Charge per Hospital Discharge

—the average charge per acute inpatient hospital discharge for AIDS/HIV was $11,276 in 1991 in Massachusetts, compared to an average charge per discharge of $7,248 for discharges for all other diagnoses;

—the average charge for private insurance AIDS/HIV discharges was highest at $14,158 and lowest for self pay/free care/bad debt discharges at $10,074.

—between 1988 and 1991, the average charge per discharge for AIDS/HIV increased by only 3.4%, as compared to an increase of 31% in the average charge per discharge for all other diagnoses.

Average Hospital Charges per Patient Per Year

—the average inpatient charges per AIDS/HIV patient per year were $18,768 in 1991;

—between 1988 and 1991, the average inpatient charges per AIDS/HIV patient per year decreased marginally.

Total Amount of Hospital Charges

—AIDS/HIV hospital charges totalled $63.3 million in 1991, and constituted 1% of all hospital charges;

—Medicaid paid 42% of all AIDS/HIV hospital charges, the single largest portion as compared to other payers;

—between 1988 and 1991, total AIDS/HIV inpatient charges increased by 98%, reflecting the 98% increase in the number of AIDS/HIV discharges and the 101% increase in the number of AIDS/HIV patients in Massachusetts.

Surveillance Reports

This is the first in a series of surveillance reports on the utilization of and charges for health care services provided in Massachusetts to persons with AIDS or HIV infection. The purpose of the series is to provide basic information about AIDS/HIV charges and service utilization that can be used for program targeting, planning, evaluation, and advocacy. The series will provide data on key indicators related to AIDS/HIV health care service utilization and charges and will enable tracking of AIDS/HIV inpatient, outpatient, and pharmaceutical utilization and charges and their status over time in Massachusetts. In addition, comparisons of AIDS/HIV charges and utilization in Massachusetts to those nationally and in other states will be made.

The series will provide a comprehensive portrait of health care service utilization and charges for AIDS/HIV patients, including statistics from all sites of care and all payers. The reports will be based upon regularly reported data available to the Massachusetts Department of Public Health (MDPH), and the comprehensiveness of the portrait will be constrained by the availability of data.

The first report focuses on inpatient health care delivered in acute care hospitals. Some additional data on ambulatory care services and pharmaceuticals provided through programs funded by the Massachusetts Department of Public Health are also included. While the inpatient data in this first report reflect all hospitalizations for AIDS/HIV related diagnoses occurring between 1988 and 1991, the ambulatory and pharmaceutical data from DPH-funded programs only reflect a small portion of ambulatory care and pharmaceutical utilization by AIDS/HIV patients. Future reports will attempt to incorporate more comprehensive ambulatory care and pharmaceutical utilization data from major third party payers.

Supplemental Reports

In addition to regularly updated surveillance reports, a series of supplemental reports will be published focusing on specific analytic issues related to health service utilization and charges for AIDS/HIV care. At present, four possible areas for future supplemental reports have been identified: (1) variation in the charges and utilization of AIDS/HIV health care services associated with [illegible] issues of the disease including variations in charges and utilization at different stages of AIDS/HIV, variations in charges and utilization between diagnosed AIDS discharges and other HIV discharges, and variations in charges and utilization between specific comorbidities; (2) variation in charges and utilization associated with AIDS/HIV patient characteristics including risk behaviors, gender, age, race/ethnicity, and time elapsed since AIDS diagnosis; (3) variation in charges and utilization associated with different diagnostic and treatment patterns including

procedure utilization; and (4) variation in charges and utilization associated with hospital characteristics. Teaching hospitals will be compared with non-teaching hospitals, public hospitals compared with voluntary hospitals, and regional differences analyzed. Analyses will explore changes in procedure utilization over time, changes in patient characteristics by payer, and changes in length of stay and number of discharges per patient.

Data Sources and Limitations

Acute Care Inpatient Hospitalizations

Data on acute care inpatient hospitalizations are derived from the Uniform Hospital Discharge Data Set (UHDDS) maintained by the Massachusetts Rate Setting Commission. This data set includes all discharges from voluntary and municipal acute care hospitals, and excludes discharges from chronic, psychiatric, federal, and state hospitals. UHDDS data included in this report are for 1988-1991. The ICD-9-CM codes selected to define AIDS/HIV are specified in Appendix A.

UHDDS charge data include inpatient room and board, special charges such as recovery room use, and ancillary charges including laboratory and diagnostic procedures. Inpatient charges are distinct from inpatient costs. This report uses hospital charges, rather than costs - charges represent the amount a hospital bills for services, not necessarily the actual cost of the service, which may, in fact, be either higher or lower. Charges may include component amounts not related directly to patient care or the delivery of a particular service such as administrative costs. Charges do not necessarily represent the actual amount paid to the hospital either by third party payers or by individuals; third party payers may negotiate rates or discount from charges with individual hospitals. It may be that, regardless of the charge, only the contracted rate is paid. The ratio of costs to charges may vary, by hospital, by payer and by service within the hospital, and the ratio may change over time. There is evidence, however, that charges and costs are highly correlated; therefore, since access to charge information is relatively easy, charges are often used as a proxy for costs.

Also, keep in mind that:

- Charges in this report have not been adjusted to account for inflation; therefore, changes between years should be interpreted with this in mind.

- In a later supplemental report, the relationship between costs and charges will be explored in more detail and there will be an attempt to adjust charges using hospital specific cost/charge ratios.

- UHDDS payer classifications are based upon expected principal payer, which may differ from actual payer. Patient level data are based upon aggregations of discharges with a given medical record

number during a given year discharged from a given hospital. Patients discharged from multiple hospitals during a given year will be classified as separate patients in this report.

Ambulatory care

Ambulatory care data are derived from two MDPH data bases: (1) the home health agency data base based upon annual-aggregate surveys of Massachusetts home health agencies; and (2) the ACT NOW (Access to Care NOW) program database derived from information collected by an MDPH program established in 1991 to provide primary medical care to uninsured and underinsured Massachusetts residents who are infected with HIV. Home health agency data included in this report are for 1988-1990, and ACT NOW data are for 1991.

Pharmaceuticals

Pharmaceutical data are derived solely from approved claims filed with the HIV Drug Reimbursement Program (HDRP), an MDPH program established in 1989 through which uninsured and underinsured Massachusetts residents infected with HIV can obtain needed medications. Pharmaceutical data included in this report are for 1989-1991.

The list of pharmaceuticals eligible for reimbursement by the HDRP have changed over time, and changes in HDRP data partially reflect changes in coverage. See Appendix B for a list of pharmaceuticals covered by the HDRP for each year since 1989.

Acute Inpatient Care Utilization

Number of Discharges

In 1991, there were 5,614 discharges for AIDS/HIV related diagnoses in Massachusetts acute care hospitals. AIDS/HIV discharges constituted less than 1% of all discharges in 1991. During the same year, births constituted 9% of all discharges, cancer 5%, heart disease 12%, and stroke 2% (see Figure 1).

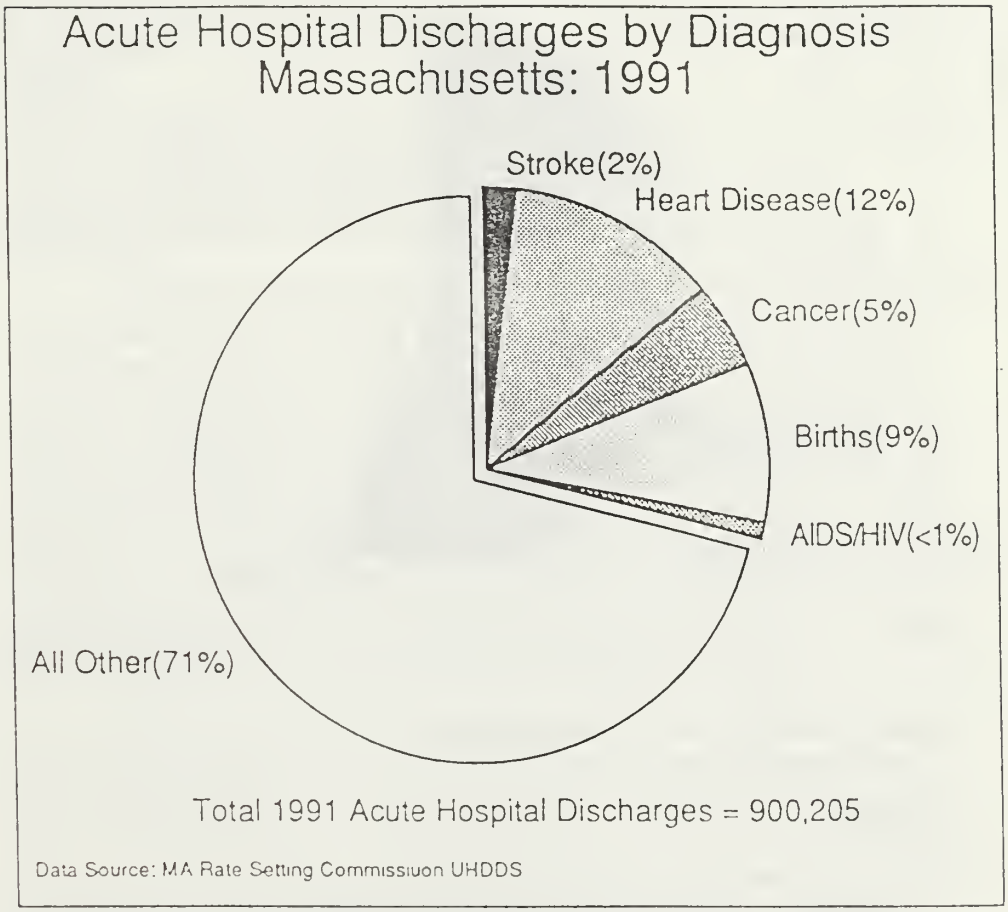

Figure 1

The 2,445 Medicaid discharges constituted 44% of all AIDS/HIV discharges, the single largest proportion for any payer. The 996 private indemnity insurer discharges constituted 18% of all AIDS/HIV discharges in 1991, the second largest proportion of AIDS/HIV discharges. Self pay/free care/bad debt discharges constituted 14% of AIDS/HIV discharges, HMO 12%, and Medicare 9% (see Figure 2).

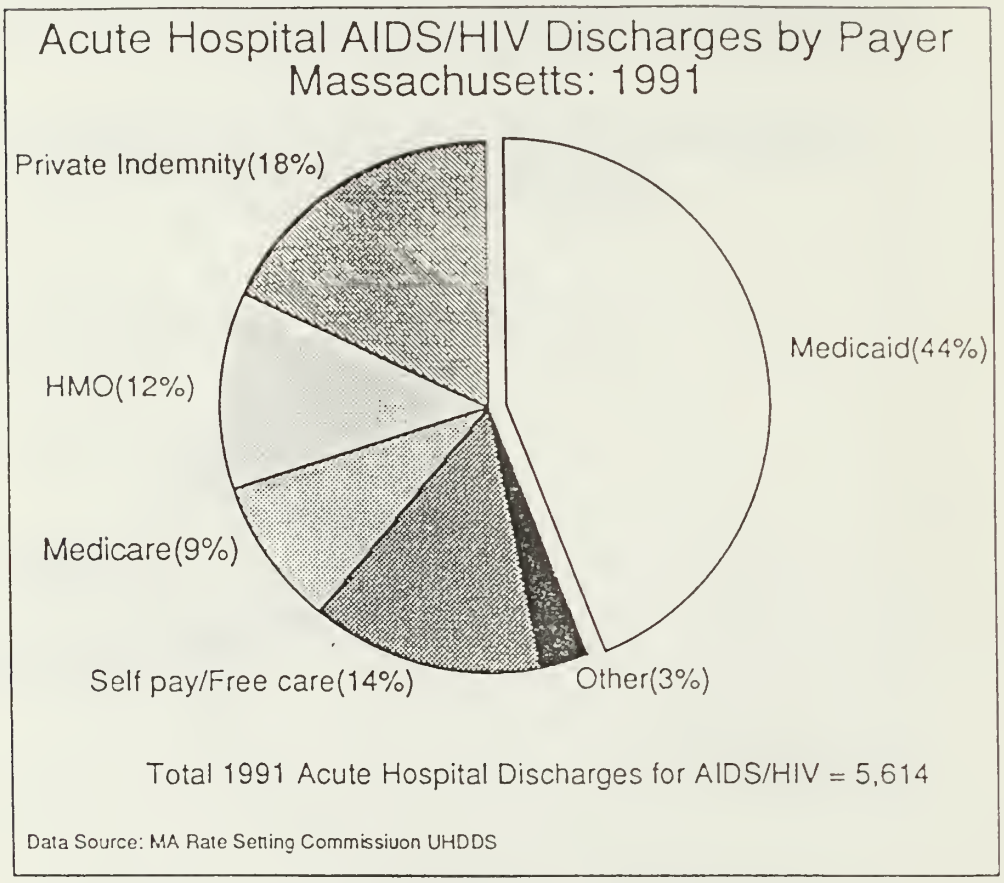

Figure 2

In New York, the state with the largest number of AIDS cases in the U.S., the proportion of Medicaid discharges was 61.6%, almost 1.5 times larger than the Medicaid proportion in Massachusetts. However, both Medicare and self pay/free care/bad debt proportions were higher in Massachusetts than in New York (see Table 1).

Table One: Acute Hospital Discharges[1] for AIDS/HIV by Payer Massachusetts and New York, 1991		
Proportion of Total AIDS/HIV Discharges		
	Massachusetts 1991	New York [2] 1991
Medicaid	44 %	61.6 %
Private Insurance [3]	30	20.7
Medicare	9	5.6
Self pay/Free care /Bad debt	14	7.7
Other [4]	3	4.5

[1] Data source: Massachusetts Rate Setting Commission UHDDS
[2] Data source: NY State Health Department, AIDS in NY State; reporting 82% complete
[3] Includes Blue Cross/Blue Shield, HMOs, and commercial insurance
[4] Includes other government insurance, worker's compensation and other private insurance

Between 1988 and 1991, the number of AIDS/HIV discharges in Massachusetts increased by 98% from 2,836 to 5,614, with a corresponding increase of 101% in the number of AIDS/HIV patients. The increase in the number of discharges parallels the increase in the number of AIDS/HIV patients in Massachusetts. The 98% increase in AIDS/HIV discharges was much greater than the 3.3% increase in the number of all other discharges between 1988 and 1991. The 98% increase in the number of AIDS/HIV discharges in Massachusetts from 1988 through 1991 was similar to the 99% increase in the number of AIDS/HIV discharges in New York during this same period.

The percent increase in the number of AIDS/HIV discharges in Massachusetts between 1988 and 1991 varied among payers. The single greatest increase in the number of AIDS/HIV discharges occurred for Medicare discharges which increased by 264% during this time period. The number of Medicaid discharges for AIDS/HIV increased by 129% from 1988 through 1991, and the Medicaid proportion of all AIDS/HIV discharges increased from 38% in 1988 to 44% in 1991. The number of AIDS/HIV discharges for HMOs increased by 136% between 1988 and 1991. In contrast, the number

of AIDS/HIV discharges for private indemnity insurers increased by only 24% between 1988 and 1991 (see Table 2).

TABLE TWO: Acute Hospital Discharges for AIDS/HIV by Payer [1]
Massachusetts, 1988-1991

	YEAR				Percent Increase
	1988	1989	1990	1991	1988-1991
Total	2,836	3,832	4,535	5,614	98 %
PAYER					
Medicaid	1,073	1,467	1,821	2,455	129 %
Private Indemnity	800	933	1,023	996	24 %
HMO	290	393	472	685	136 %
Medicare	141	200	319	514	264 %
Self pay/Free care /Bad debt	489	676	741	794	62 %
Other[2]	43	163	159	170	295 %

[1] Data source: MA Rate Setting Commission UHDDS

[2] Includes other government insurance, worker's compensation and other private insurance

Average Length of Stay

The average length of stay for AIDS/HIV discharges from Massachusetts acute care hospitals was 9.4 days in 1991 compared to an average length of stay of 7.0 days for all other Massachusetts acute hospital discharges during the same year. The average length of stay for AIDS/HIV discharges in Massachusetts in 1991 was 51% below the national average length of stay (14.2 days) and 88% below the New York average length of stay (17.7 days) for AIDS/HIV discharges.

The average length of stay for AIDS/HIV discharges varied among payers in 1991. The highest average length of stay in 1991 was 9.9 days for Medicaid AIDS/HIV discharges, followed by 9.7 days for private indemnity insurers. Average lengths of stay for other payers varied only from 8.1 days for HMOs, to 8.6 days for Medicare, to 8.9 days for self pay/free care/bad debt (see Table 3).

TABLE THREE: Average Length of Stay per AIDS/HIV Discharge and Average Number of AIDS/HIV Discharges per Patient by Payer[1] Massachusetts, 1991		
	Average Length of Stay/Discharge	Average Number of Discharges/Patient
Total	9.4	1.68
PAYER		
Medicaid	9.9	1.66
Private Indemnity	9.7	1.74
HMO	8.1	1.72
Medicare	8.6	1.78
Self pay/Free care /Bad debt	8.9	1.46
Other[2]	8.9	1.79

[1] Data Source: MA Rate Setting Commission UHDDS
[2] Includes other government insurance, worker's compensation, and other private insurance

Average length of stay for AIDS/HIV discharges decreased by 20% from 1988 through 1991 (see Table 4). In comparison between 1988 and 1991, the average length of stay for all discharges in Massachusetts increased by 6%. During this same period, average lengths of stay for AIDS/HIV discharges decreased by 10% nationally and by 11% in New York.

TABLE FOUR: Average Length of Stay per AIDS/HIV Discharge and Average Number of AIDS/HIV Discharges per Patient [1] Massachusetts, 1988-1991					
	1988	1989	1990	1991	Percent Decrease 1988-1991
Average Length of Stay per Discharge	11.8	11.4	10.5	9.4	20 %
Average Number of Discharges per Patient	1.69	1.66	1.68	1.68	0.6 %

[1] Data source: MA Rate Setting Commission UHDDS

Examination of the length of stay distribution for 1988 through 1991 reveals that from 1988 to 1991, there was a 25% increase in the proportion of AIDS/HIV discharges with average lengths of stay of 1 day, and a 34% increase in the proportion of AIDS/HIV discharges with an average length of stay in the 2-3 day range (see Figure 3). Possible explanations for the 20% decrease in average length of stay from 1988 through 1991 include the following: (1) earlier intervention in the course of AIDS/HIV; (2) use of more aggressive therapies; (3) increased use of standardized treatment protocols throughout Massachusetts hospitals; (4) increased access to non-hospital alternatives; and (5) additional home health care options.

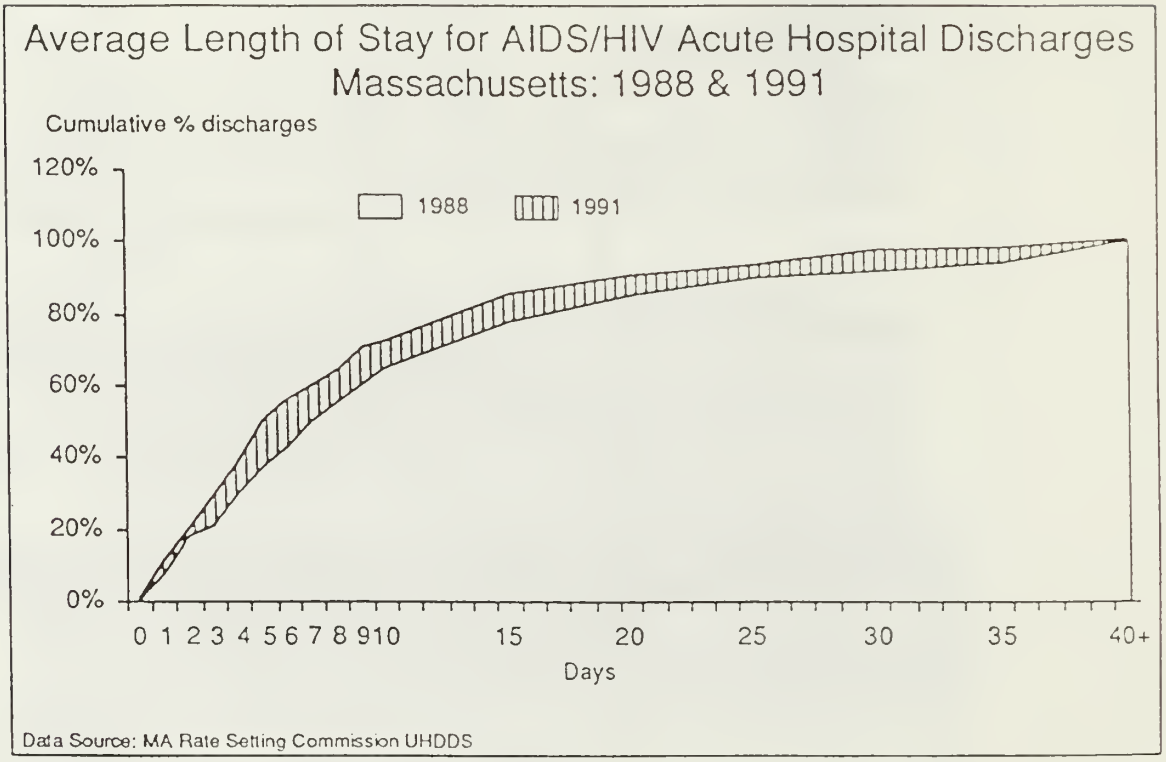

Figure 3

By comparison, in 1990, the average length of stay per AIDS/HIV discharge in Massachusetts was lower than the average length of stay per AIDS/HIV discharges in most other states with high numbers of AIDS cases. For example, as defined by the HIV DRG[1], Massachusetts had an average length of stay of 12.4 days in 1990 for HIV discharges as compared to 21.7 days in New York and 17.2 days in New Jersey (see Table 5). However, when compared to other New England States, Massachusetts had a greater average length of stay than Maine (10.1 days) and New Hampshire (11.8 days), but a lower average length of stay than Vermont (14.6 days). (See Table 6.)

[1] Comparisons made using DRGS rather than ICD-9 codes due to data availability; therefore, average length of stay and average charge per discharge are not directly comparable to other figures.

TABLE FIVE: AIDS/HIV[1] Inpatient Charges and Utilization for 1990 by Selected States with 2,500 or more AIDS Cases

State	Number of AIDS/HIV Discharges	Average Length of Stay (days)	Average Charge per AIDS/HIV Discharge
California	14,286	10.7	$ 19,000
Florida	6,033	12.7	17,400
Massachusetts	1,841	12.4	13,400
New Jersey	6,148	17.2	13,600
New York State	21,725	21.7	17,500
Washington State	1,033	9.6	10,700

[1] As defined by the HIV Diagnostic Related Groups
Data source: PANDORA 1991-1992, The Codman Research Group, Inc.

TABLE SIX: AIDS/HIV Inpatient Charges and Utilization[1] for 1990 by Selected New England States

State	Number of AIDS/HIV Discharges	Average Length of Stay (days)	Average Charge per AIDS/HIV Discharge
Maine	103	10.1	$ 9,200
Massachusetts	1,841	12.4	13,400
New Hampshire	105	11.8	12,700
Vermont	59	14.6	12,600

[1] As defined by the HIV Diagnostic Related Groups
Data source: PANDORA 1991-1992, The Codman Research Group, Inc.

Annual Average Number of Discharges per AIDS/HIV Patient

In 1991, the average number of discharges for AIDS/HIV patients in Massachusetts was 1.68. In other words, the average AIDS/HIV patient who received inpatient treatment was hospitalized for 1.68 distinct episodes.

Variation among payers was seen in the average number of discharges per AIDS/HIV patient. Medicare averaged 1.78 discharges per AIDS/HIV patient in 1991, only marginally more than the 1.74 discharges for private indemnity insurers and the 1.72 discharges for HMOs. Self pay/free care/bad debt averaged 1.46 discharges per patient and Medicaid averaged 1.66 (see Table 3).

Although the average number of discharges per patient varied by payer from 1988 through 1991, the overall average number of discharges per patient remained stable at approximately 1.7 (see Table 4). Thus, while the average annual number of hospital episodes for AIDS/HIV patients has not changed since 1988, the average number of days per hospital episode has decreased substantially. This combination could indicate changes over time in comorbidities and stage of illness, in demographic and risk characteristics of the AIDS/HIV patient population, and in AIDS/HIV treatment protocols. Future supplemental reports will include an examination of changes over time in AIDS/HIV comorbidities and stage of illness of hospitalizations, in procedure utilization during hospitalizations, and in the availability of home care and long-term care as well. Supplemental reports will also examine changes over time in the demographic and risk characteristic distribution of hospitalizations.

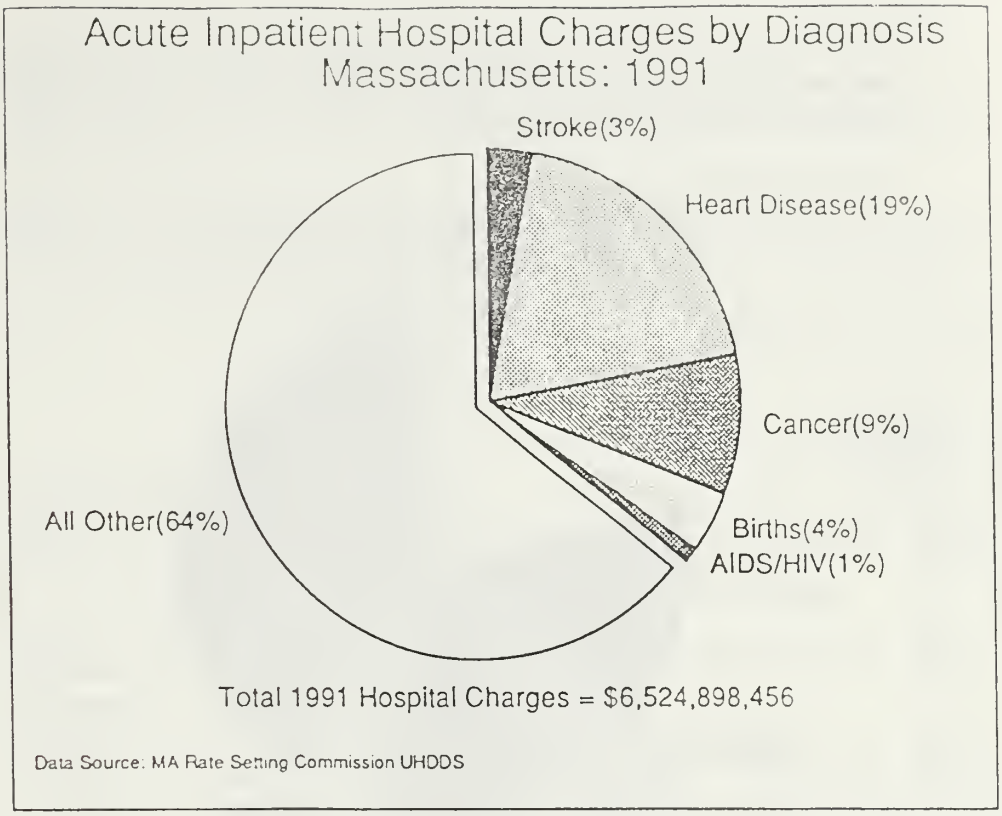

Figure 4

Acute Inpatient Charges

Total Charges

Acute care inpatient charges for all AIDS/HIV discharges in 1991 totalled $63.3 million, which constituted 1% of all charges for hospital discharges during that period. In comparison, 1991 charges for births constituted 4% of all charges, cancer 9%, heart disease 19%, and stroke 3% (see Figure 4). See Appendix C for ICD-9-CM codes used to define cancer, heart disease, births, and stroke.

Medicaid inpatient charges totalled $26.5 million for AIDS/HIV discharges in 1991 - 42% of all AIDS/HIV charges - and the Medicaid share of AIDS/HIV inpatient charges was almost twice as large as that for any other third party payer. Private indemnity insurance, which includes Massachusetts Blue Cross/Blue Shield and commercial insurers, had charges totalling $14.1 million in 1991 - 22% of total AIDS/HIV charges. Self pay, free care, and bad debt charges totalled $7.7 million in 1991, or 12% of all AIDS/HIV discharges.

HMO charges totalled $7.6 million in 1991, 12% of total AIDS/HIV charges, and Medicare charges totalled $5.7 million, 9% of total AIDS/HIV charges (see Figure 5).

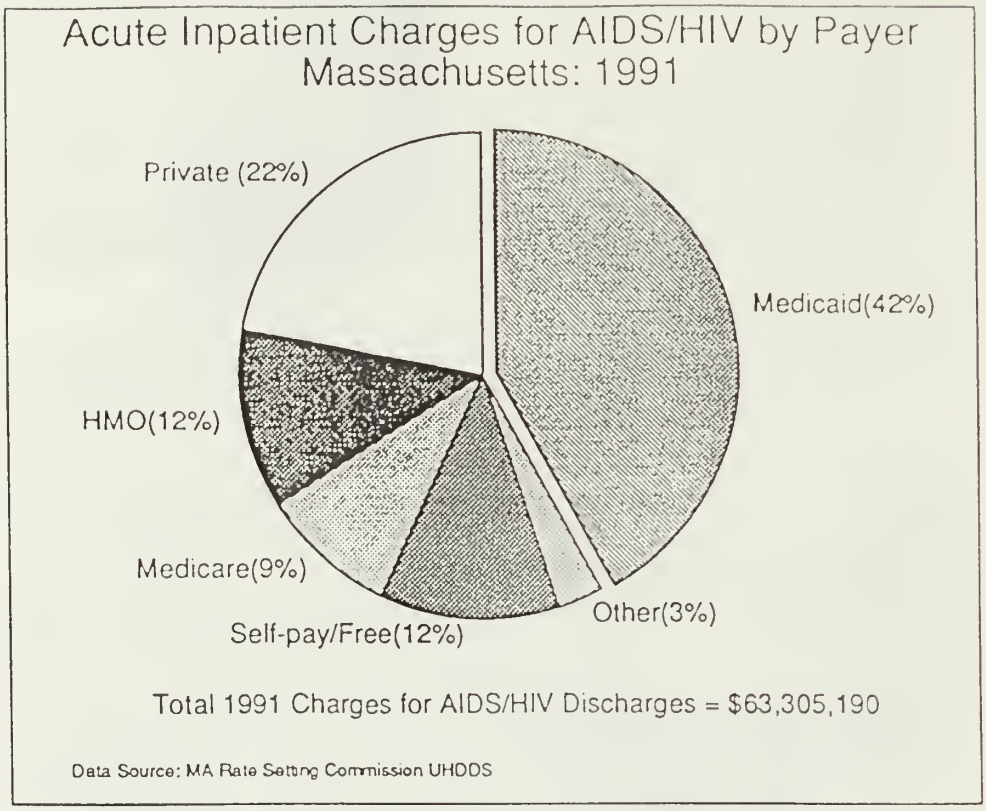

Figure 5

Between 1988 and 1991, total charges for AIDS/HIV discharges increased by 98% from $31.9 million to $63.3 million. During the same period, charges for all discharges from Massachusetts hospitals increased by 36%. The 98% increase in total AIDS/HIV charges is comparable to the 98% percent increase in the number of AIDS/HIV discharges and to the 101% increase in the number of patients over the four year period. The 98% increase in total charges for AIDS/HIV discharges in Massachusetts between 1988 and 1991 excluded estimated increases.

The percent increase in charges for AIDS/HIV discharges in Massachusetts between 1988 and 1991 varied among payers. The single greatest increase in charges for AIDS/HIV discharges was accounted for by Medicare charges which increased by 341% from $1,289,893 in 1988 to $5,685,110 in 1991, as compared to a 98% increase overall for all AIDS/HIV charges. The increase in Medicare charges may have resulted from the effects of several factors. For example, average survival of AIDS/HIV patients following AIDS diagnosis increased during this period from 18 to 24 months, and a larger number of AIDS/HIV patients most likely survived the two-year waiting period required in order to become eligible for Medicare.

In addition, some portion of the increase in Medicare charges may be attributed to the increase in the number of AIDS/HIV patients developing kidney failure. A diagnosis of kidney failure constitutes a classification by Medicare as "disabled" and thus eligible for Medicare (see Table 7).

TABLE SEVEN: Acute Inpatient Charges[1] for AIDS/HIV by Payer
Massachusetts, 1988-1991

	YEAR				Percent Increase
	1988	1989	1990	1991	1988-1991
Total	$31,904,481	$42,150,948	$53,878,747	$63,305,190	98 %
PAYER					
Medicaid	$11,698,714	$7,006,175	$19,255,835	$26,544,590	127 %
Private					
Indemnity	9,257,431	10,600,470	13,963,269	14,101,027	52 %
HMO	3,461,212	4,054,314	5,339,429	7,611,949	120 %
Medicare	1,289,893	2,224,636	3,517,444	5,685,1103	41 %
Self pay /Free care /Bad debt	4,814,874	7,205,488	8,408,744	7,774,281	62 %
Other[2]	389,005	1,059,865	1,267,526	1,587,433	308 %

[1] Data source: MA Rate Setting Commission UHDDS
[2] Includes other private insurance, worker's compensation, other government

Medicaid charges for AIDS/HIV consistently constituted the single greatest proportion of AIDS/HIV charges between 1988 and 1991 and increased by 127% during this period, compared to the 98% increase in total AIDS/HIV charges. A similar rate of increase in AIDS/HIV charges occurred for HMOs - 120%. In contrast, AIDS/HIV charges for self pay/free care/bad debt increased by only 62%, and for private indemnity insurers, by only 52% during the same period. Nationwide studies have also shown a marked shift over time in the AIDS/HIV payer distribution away from private insurance toward Medicaid.

The demographics of the AIDS/HIV population has changed over time, and this change may be reflected in the increasing number of people with AIDS covered by Medicaid. For example, increases of AIDS include an increase in the number of injection drug users (IDUs), women and children. This population may be less likely to have private insurance and/or more likely to meet Medicaid income eligibility requirements. Furthermore, since many private insurers have "pre-existing condition" clauses in their policies and have required HIV antibody testing prior to enrollment, more people infected with HIV who might have once been insured privately may now be enrolled in a public insurance program.

Average Charge per AIDS/HIV Discharge

In 1991, the average charge per AIDS/HIV discharge was $11,276 in comparison to an average charge of $7,248 for all other Massachusetts hospital discharges during the same period. The average charge per AIDS/HIV hospital discharge in Massachusetts in 1991 was 1.5% below the national average charge of $11,446 and 46% below the New York average charge of $16,408. The average charge per AIDS/HIV discharge varied among payers with the highest average charge per AIDS/HIV discharge of $14,158 for private indemnity insurers. The average charge per AIDS/HIV discharge for all other payers varied only from $10,074 for self pay/free care/bad debt discharges to $11,061 for Medicare discharges (see Table 8).

TABLE EIGHT: Average Charge per AIDS/HIV Discharge, per AIDS/HIV Day, and per AIDS/HIV Patient by Payer [1]
Massachusetts 1991

	Average Charge per AIDS/HIV Discharge	Average Charge per AIDS/HIV Day	Average Charges per AIDS/HIV Patient
Total	$11,276	$1,206	$18,768
PAYER			
Medicaid	10,812	1,098	17,960
Private Indemnity	14,158	1,457	24,695
HMO	11,112	1,372	19,078
Medicare	11,061	1,289	19,740
Self pay /Free care /Bad debt	10,074	1,126	14,344
Other[2]	9,338	1,050	16,710

[1] Data Source: MA Rate Setting Commission UHDDS

[2] Includes other private insurance, worker's compensation, other government insurance

The average charge per AIDS/HIV discharge increased from $10,902 in 1988 to $11,276 in 1991, a modest increase of only 3.4% (see Table 9). In comparison, during the same period, the average charge per discharge for all diagnoses in Massachusetts increased by 31%, and the average charge per AIDS/HIV discharge decreased by 9% in New York.

TABLE NINE: Acute Inpatient Hospital Charges per AIDS/HIV Discharge and per AIDS/HIV Patient[1] Massachusetts, 1988-1991

	1988	1989	1990	1991	Percent Change from 1988-1991
Average Charge per Discharge	$10,902	$11,000	$11,411	$11,276	+3.4 %
Average Charge per Hospital Day	$924	$963	$1,087	$1,206	+30%
Average Charges per Patient	$19,013	$18,208	$19,955	$18,768	-1.3 %

[1] Data source: Massachusetts Rate Setting Commission UHDDS

Some comparisons were made using Diagnostic Related Group (DRG) rather than ICD-9 codes due to data availability; therefore, average length of stay and average charge per discharge are not directly comparable to other figures. When AIDS/HIV discharges in 1990 were analyzed by DRG, the average charge per AIDS/HIV discharge in Massachusetts was higher than the average charge per HIV discharge in other New England states; the Massachusetts average charge was $13,400 per AIDS/HIV discharge as compared to $9,200 in Maine, $12,700 in New Hampshire, and $12,600 in Vermont (see Table 6). However, in comparison to other selected states with 2,500 or more AIDS cases, Massachusetts had a lower average charge per AIDS/HIV discharge than all but Washington State whose average charge per AIDS/HIV discharge was $10,700 (see Table 5).

Average Charge per AIDS/HIV Day

In 1991, the average charge per day for AIDS/HIV discharges was $1,206 as compared to an average charge per day of $1,037 for all other discharges. The average charge per day varied among payers, from highs of $1,457 for private indemnity insurers and $1,372 for HMOs to lows of $1,098 for Medicaid and $1,126 for self pay/free care/bad debt. Charge structures and contractual agreements vary by payer which may account for at least some of the variation in AIDS/HIV charges per day among payers (see Table 8).

From 1988 through 1991, the average charge per day for AIDS/HIV discharges increased by 30% as compared to an increase of 25% in the average charge per day for all other discharges (see Table 9). Several possible explanations for this increase include the following: (1) increased intensity of resource utilization during inpatient stays; (2) change in comorbidities and increased severity of illness; (3) change in the demographics of the AIDS/HIV patient population; and (4) change in third party payer mix. These will be explored in future supplementary reports.

Average Charges per AIDS/HIV Patient

The average 1991 charges per AIDS/HIV patient in Massachusetts were $18,768. Private insurers had the highest average 1991 charges per patient, $24,695, almost 75% higher than the average charges per AIDS/HIV patient of $14,344 for self pay/free care/bad debt. The average charges per AIDS/HIV patient with Medicaid were $17,960, lower than all other payers with the exception of self pay/free care/bad debt patients. Average charges per AIDS/HIV patient for Medicare and HMOs differed slightly - $19,740 and $19,078 respectively (see Table 8).

From 1988 through 1991, the average charges per AIDS/HIV patient actually decreased marginally from $19,013 in 1988 to $18,768 in 1991 (see Table 9). The relative stability in the average charges per AIDS/HIV patient during this period, together with a 30% increase in the average charge per day during the same period, may indicate greater intensity of resource utilization combined with shorter lengths of stay.

Ambulatory Care Utilization

ACT NOW

The ACT NOW program (Access to Care NOW) is a state-funded program established by the Massachusetts Department of Public Health in 1991. It is designed to provide primary health care to uninsured and underinsured Massachusetts residents who are infected with HIV. There is a $1,000 cap per ACT NOW client per year.

Beginning in 1991, the program funded 21 community health centers and hospital outpatient departments in 13 cities, and has since expanded to included 33 community health centers and hospital outpatient departments. ACT NOW provides reimbursement to community health centers/hospital outpatient departments for any health services defined by the center as primary care. A variety of services such as medical monitoring, mental health counseling, social service referrals, and substance abuse counseling are covered by ACT NOW. In 1991, 2,968 visits were made by 412 clients to the ACT NOW program sites across Massachusetts, and the average number of visits per participant was 7.2.

Home Health Agencies

In 1990, 1,125 AIDS/HIV cases were seen by Massachusetts Home Health Agencies (HHAs), a 115% increase over the 523 cases seen by HHAs in 1989. Due to the Massachusetts Department of Public Health's discontinuing its survey of Home Health Agencies in 1991, Home Health Agency data are not available after 1990.

Pharmaceutical Utilization

HIV Drug Reimbursement Program

The Massachusetts HIV Drug Reimbursement Program (HDRP) is a program for HIV seropositive residents of Massachusetts who are uninsured and/or have the following income limitations: an annual net income of $20,250 or less if single with no dependents; or an annual net income of $20,250 or less plus $2,200 per dependent for those supporting families. Funding for HDRP comes from state funds (70%), Ryan White Title I funds (15%), and Ryan White Title II funds (15%). There is no medication-per-patient "cap"; therefore, enrollees are permitted reimbursement for as many prescribed medications as needed and as covered by the Program.

In 1991, the number of prescriptions per person reimbursed for by the HDRP was 4,351. The average number of prescriptions per enrollee in 1991 was 5.1. There was an increase in the average number of prescriptions per enrollee between 1990 and 1991 which could be due to the addition of six medications listed in Appendix B.

Pharmaceutical Charges

HIV Drug Reimbursement Program

Total HDRP charges for 1991 were $834,968, and the average charge per enrollee was $977.

International Classification of Diseases

The International Classification of Diseases (ICD-CM) classifies morbidity and mortality information for statistical purposes as well as for the purpose of indexing hospital medical records. The ICD-CM was first used in 1900 and has since been revised every 10 years. The Ninth Revision codes are used in this report. The Ninth Revision, published in 1977, is used to code data beginning with 1979.

The ICD-9-CM codes used in this report to define AIDS/HIV reflect those selected by the Centers for Disease Control in 1987 to be most indicative of HIV infection.

042: HIV infection with specified conditions
- 042.0: with specified infections
- 042.1: causing other specified infections
- 042.2: with specified malignant neoplasms
- 042.9: AIDS, unspecified

043: HIV infection causing other specified conditions
- 043.0: causing lymphadenopathy
- 043.1: causing specified diseases of the central nervous system (CNS)
- 043.2: causing specified CNS diseases
- 043.3: causing specified conditions
- 043.9: AIDS-Related Complex (ARC), unspecified

044: Other HIV infection
- 044.0: HIV causing specified acute infections
- 044.9: HIV infection, unspecified

795.8: Positive serological or viral culture findings for HIV

NOTE: The ICD-9-CM diagnosis code 279.1, "Deficiency of the cell-mediated immunity," was not examined in any data source as it does not predict AIDS/HIV with much certainty.

APPENDIX B

Medications covered by the Massachusetts HIV Drug Reimbursement Program

Since 11/15/89:

Zidovudine
Aerosolized Pentamidine
Alpha Interferon

Added on 7/1/90:

Fluconazole
Ganciclovir

Added on 11/15/91:

Bactrim
Dapsone
Clotrimazole
Nystatin
ddI
Foscarnet

APPENDIX C

ICD-9-CM Codes Used for Other Diagnoses

Cancer:	140-208
Heart Disease:	390-429, 439-448
Stroke:	430-438
Birth/Delivery:	650-659